ERICSSON E5740 VOYAGER

MPEG-2 Standard Definition DSNG

Broadcasters and satellite news gathering organizations are covering more live events, sports and news spots than ever before and need reliable technology that will make it easier and more efficient to deliver video from the field. The Ericsson E5740 Voyager encoder is a versatile 2RU MPEG-2 platform that delivers remarkable performance and is trusted by the majority of news gathering organizations for its high-quality encoding and easy upgrade path to MPEG-4 AVC and HD.

The E5740 is a smart choice for broadcasters seeking increased efficiencies in operations to stay competitive. With multiple HD upgrade options to quickly add either MPEG-2 HD or MPEG-4 SD/HD, the E5740 offers impressive and unprecedented upgradeability. A DVB-S2 capable modulator comes as standard, enabling customers to benefit from the 25 percent increase in transmission efficiency that this typically provides over DVB-S. Other performance and feature enhancing upgrades are also available including a powerful MPEG multiplexing card (REMUX) to add MCPC capability and a dual Gigabit Ethernet IP card supporting SMPTE 2022 FEC (Pro-MPEG). The E5740 achieves all of this performance whilst remaining exceptionally easy-to-use and with multiple control options. It is also supported by our Voyager 'advance loan' scheme and guaranteed for two years.

PRODUCT OVERVIEW

Flexible Options for Serving a Wide Range of Customer Needs

The E5740 is an extremely flexible, high-end encoder/modulator that can be upgraded to provide HD encoding, allowing both improved bandwidth efficiencies and best quality. It features best-in-class MPEG-2 SD encoding in 4:2:0 and 4:2:2 profiles. The E5740 has four free option card slots for upgrades and adding features.

Unrivalled Manufacturers Support

Should it be necessary to return a unit for service during the warranty period, Ericsson has a unique Advance Loan Scheme with committed spare units held in central stock to restore customer operations as quickly as possible. The E5740 platform comes with a standard two-year warranty that together with the Advance Loan Scheme offers unrivalled support.

DVB-S2 Capability Provides Major Bandwidth Savings

DVB-S2 offers up to a 25 percent improvement in transmission efficiencies compared to DVB-S. DVB-S2 is a modem technology so the benefits are in addition to savings offered by Ericsson's premium encoding technology. The E5740 L-band and IF models come with a DVB-S2 capable modulator as standard which can be activated via license key to enable its advanced features.

DENG Capability

The E5740 can be used for DENG (Terrestrial Microwave) applications either with or without the internal DVB-S2 modulator. The COFDM modulator option card therefore makes the E5740 a dual purpose DSNG/DENG transmitter.

BASE UNIT FEATURES

- Voyager E5740 L-BAND DSNG (M2/VOY/E5740-LBAND)
- Voyager E5740 IF DSNG (M2/VOY/E5740-IF)

The E5740 provides premium MPEG-2 SD encoding, coupled with an advanced DVB-S2 modulator. It also offers unmatched potential for customization and upgrade. Featuring four option slots, the E5740 can be expanded to provide up to eight stereo audios. Other possibilities include an internal IRD card, IP streaming card, MPEG-2 HD encoder, MPEG-4 AVC HD/SD encoder and an internal multiplexer card REMUX). RAS and BISS can be added without occupying option card slots.

Note: The DVB-S / S2 modulator provides either an L-band output or 70 MHz IF output. The correct card must be specified at time of ordering.

Note: An 18 to 36 VDC power option is available for special order.

HARDWARE OPTIONS

Audio Option Card (M2/EOM2/AUDLIN2)

- Two stereo pairs supported per card
- Analog input levels: 12, 15, 18, 21, 22 and 24dB
- MPEG-1 Layer II audio encoding
- Dolby® Digital (AC-3) encoding
- Dolby Digital (AC-3) 1 – 5.1 channel and Dolby®E pass-through
- Linear PCM and DTS pass-through
- Up to three audio option cards may be fitted supporting a total of eight stereo pairs in the unit

REMUX (M2/EOM2/REMUX)

- The REMUX card will re-multiplex three external transport streams with the locally generated stream. The card supports automatic PID re-mapping and resolves conflicts automatically. The REMUX card also supports the insertion of externally generated dynamic PSIP into the transport stream.

BISS Scrambler Card (M2/EDCOM2/BISS)

- BISS (Basic Interoperable Scrambling System) for secure contribution links. Allows material to be protected from unwanted viewing using the BISS open standard. Supports BISS Modes 0, 1 and Mode E for encrypted session words (as defined in EBU Tech 3292 May 2002). An application for generating encrypted session words can be downloaded from the encoder via a web browser. This option is a daughter card on the motherboard and so does not occupy an option slot.

QPSK Direct Conversion Demodulator and MPEG Decoder Hardware Option (M2/EOM2/ASISATDEC)

- Implements DVB-S QPSK demodulation capable of supporting low symbol rates and MPEG decoder capable of decoding all MPEG modes supported by the base encoder. A direct ASI input to the MPEG decoder is implemented on this combined option.

IP Output (M2/EOM2/IPTSDUAL)

- Dual Gigabit Ethernet output
- UDP/IP or RTP/UDP/IP encapsulation of MPEG-2 transport stream output
- Gigabit Ethernet physical interface
- Multicast or unicast capable
- Support multiple SPTS streams

G.703 Output (M2/EOM2/G703)

- The G.703 card supports both DS-3 at 44.736 Mbps and E3 at 34.368 Mbps

COFDM Modulator (M2/EOM2/COFDM)

- Provides a DVB-T output at 70 MHz to interface with most terrestrial microwave link systems

Upgrade to HD MPEG-2 (UPG/HD/HWO/420 and UPG/HD/SWO/422)

- The HD MPEG-2 upgrade can support both 4:2:0 (E5780/E5784 equivalent) and 4:2:2 MPEG-2 HD (E5782/E5788 equivalent)

Upgrade to SD or HD Advance Video Compression (UPG/HWO/ICE3/SD) or (UPG/HWO/ICE3/HD)

- The Intelligent Compression Engine option card supports the latest MPEG-4 AVC encoding, either SD or HD and offers multiple low latency modes

Range of ATM Outputs (M2/EOM2/ATMS34, M2/EOM2/ATMS45, M2/EOM2/ATMS155)

- Range of ATM outputs to support AAL-1 and AAL-5

Microwave Link Option Card

- For point-to-point application. Provides the modulated IF signal, 48 VDC power and remote control data needed to interface with an outdoor unit directly using a single coaxial or Triax cable. Contact Ericsson for more information.

SOFTWARE OPTIONS

Performance Upgrade (M2/ESO2/PU)

- The Performance Upgrade enables advanced Ericsson coding algorithms that increase the efficiency by at least 0.8 Mbps per channel. It also reduces the lower bit-rate limit to 256 kbps. A complimentary thirty-day trial license is available upon request.

Low Symbol Rate Software Option (M2/ESO2/LSYM)

- Low symbol rate operation, down to 300 Ksym/s, allows operation on a tight link budget using low power amplifiers and small dishes

DVB-S 8PSK (M2/ESO2/SM38PSK) / 16 QAM (M2/ESO2/SM316QAM)

- Higher order modulation upgrade (DVB-DSNG)

DVB-S2 QPSK and 8PSK (M2/ESO2/SM3S28PSK) / DVB-S2 16APSK (M2/ES02/SM3S216APSK)

- DVB-S2 modulation upgrade

Auto-Concatenation (M2/ESO2/ACON)

- Aligns the encoder to the previous encoder's GOP structure to significantly reduce coding artifacts caused by successive coding and decoding

Noise Reduction (M2/ESO2/NR)

- Four levels of professional-grade adaptive noise reduction plus three fixed levels of noise reduction

MPEG-2 422P @ ML (M2/ESO2/422)

- 1.5 Mbps to 50 Mbps
- Enables 4:2:2 video encoding profile

Dolby® AC-3 Two Channel Encoding (M2/ESO2/AC3)

- Enables Dolby® Digital (AC-3) 2.0 stereo encoding. The first two stereo pairs are free of charge

Digital Program Insertion (M2/ESO2/DPI)

- Allows carriage of DPI messages as per SCTE 35 control by either DVS 525 or contact closure read by GPI input option card

NABTS VBI Extraction (M2/ES02/525VBIDATA)

- Enables the extraction of NABTS data from the VBI and carriage in a transport stream packet as per EIA 516

SMPTE 2022 Pro-MPEG FEC (M2/ESO2/IPROFEC)

- Enables SMPTE 2022 Pro-MPEG FEC protection in the Dual IP output card for robust IP streaming
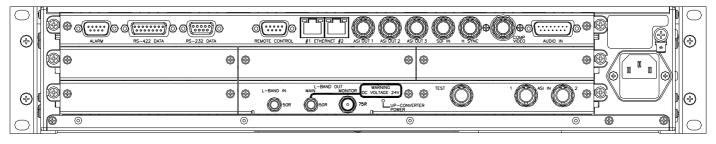
Note: E5740 is capable of controlling a high power amplifier from the front panel or web interface. Please contact Ericsson for further information and a list of supported HPA devices.

SAMPLE CONFIGURATION

SPECIFICATION

Inputs

Video

Analog composite video (PAL/NTSC) 10 bit sampling

SNR >60 dB

SDI serial digital video 625 and 525 line standard supported with EDH error detection and health monitoring

HSYNC support for 625 and 525 line

Audio

Two stereo pairs input via, AES-EBU, SDI or analog audio balanced 600W/20 kW

Input levels: 12, 15, 18, 21, 22 and 24 dB

Up to four stereo pairs can be de-embedded from SDI

Outputs

Note: Base unit will have either 70 MHz IF output or L-band output. Must be specified at time of order.

Signal conditioning: EN 300 421 (DVB-S) and EN 301 210 (DVB-DSNG) EN302-307 (DVB-S2)

Modulation: QPSK optional, 8PSK, 16QAM, DVB-S2 QPSK, 8PSK, 16APSK, 32APSK

Symbol Rate: 1 Msym/s to 48 Msym/s variable in 1 sym/s increments

IF Output Option

IF frequency: 50 MHz to 180 MHz (1 kHz steps)

Output power: -20 to +5 dBm (0.1 dB steps)

Monitor output: -20 dB relative to main IF output

L-band Output Option

Frequency: 950 MHz to 1750 MHz (1 kHz steps)

Output power: -20 to +5 dBm (0.1 dB steps)

Monitor output: -30 dB relative to main output

Switchable up-converter power: +24 VDC, 500 mA max.

Switchable 10 MHz reference

ASI Outputs

Transport Stream: 3 x ASI Copper Single Program Transport Stream

Video Encoder

Vertical Resolutions 576, 288 (PAL), 480, 240 (NTSC)

Horizontal Resolutions 720, 704, 640, 544, 528, 480, 352

MPEG-2 MP@ML

1.5 Mbps to 15 Mbps (without performance upgrade)

0.256 Mbps to 15 Mbps (with performance upgrade)

Performance upgrade option enables long GOP and adaptive GOP features

MPEG-2 422P@ML (option)

1.5 Mbps to 50 Mbps

"Pixel Perfect" fully exhaustive motion estimation

Audio Encoder

2x stereo audio channel processing

MPEG-1 Layer II Audio Encoding Standard

Encoding rates from 32 kbps to 384 kbps

Dolby® Digital (AC-3)

Encoding rates from 56 kbps to 640 kbps

Dolby Digital (AC-3) 2.0, 1 - 5.1 channel, Dolby®E, linear PCM and DTS pass-through

Data

RS-232 Supported baud rates 1200, 2400, 4800, 9600, 19200, 38400 baud

RS-422 n x 64 kbps from 64 kbps to 2048 kbps (selectable) or n x 56 kbps from 56 kbps to 1792 kbps (selectable)

Advanced Pre-processing

Ericsson professional grade adaptive spatial and temporal noise reduction offering four adaptive levels plus three fixed levels (option)

"Auto-Concatenation" I frame detection and alignment system – optimizes re-encoding performance (option)

Film mode inverse 3:2 pull-down

Scene cut detection

Frame re-synchronization

Features

Selectable range of delay modes for low latency

Front panel LCD with easy set up and operation

Sixteen fully adjustable operational configurations

Internal test tone and test pattern generation

Auto switching on loss of input source to test pattern, colored image, last good video frame with selectable text

DVB-S2 capable modulator

Logo insertion

Control

Front panel

RS-232 and RS-485 interfaces for remote control

Support for external SNMP control

Support for SNMP traps

Full control and monitoring via web browser

Physical and Power

Dimensions (W x D x H)

442.5 x 545 x 89mm (17.5" x 20.7" x 2RU)

Approximate Weight

10.5 kg (23 lbs)

Power Input

100 VAC to 120 VAC or 220 VAC to 240 VAC wide-ranging or -48 VDC

Consumption

100W no options, 250W maximum, depending on the option cards selected

Environmental Conditions

Operating Temperature

-10°C to 50°C (14°F to 122°F)

Compliance

CE marked in accordance with EU Low Voltage and EMC Directives

EMC Compliance: EN55022, EN55024, AS/NZS3548, EN61000-3-2 and FCC CFR47 Part 15B Class A

Safety Compliance: EN60950, IE60950